

REMARKS

The Examiner's Action mailed on April 15, 2008, has been received and its contents carefully considered. Additionally attached to this Amendment is a Petition for a One-month Extension of Time, extending the period for response to August 15, 2008.

In this Amendment, Applicants have editorially amended the specification, and amended claims 7, 9 and 13. The subject matter of dependent claim 6 has been amended into independent claim 13, so claim 6 has been canceled. Claims 9 and 13 are the independent claims. Claims 3, 4, 7-11 and 13-17 remain pending in the application. For at least the following reasons, it is submitted that this application is in condition for allowance.

The Examiner has rejected claims 9-11, 16 and 17 as being over *Sasaki* (USP 6,938,722) in view of *Yoshikatsu* (JP 8-21499). It is submitted that these claims are *prima facie* patentably distinguishable over the cited combination of references for at least the following reasons.

Independent claim 9 is directed to an electric power steering apparatus, which includes, *inter alia*, a support shaft that is formed as extending from a second end portion of a driving pulley along a central axis line of the driving pulley. Further, this claim recites a driving pulley support means that is held by a housing, and for supporting the driving pulley in a cantilever manner. This claimed configuration helps to decrease backlash that occurs between an inscribed gear and a circumscribed gear, by increasing a tension of the belts. This claimed configuration is neither disclosed nor suggested by the cited references.

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Sasaki is directed to an electric power steering apparatus which includes an input shaft 27 having an input pulley 28 disposed thereon. Input shaft 27 is connected to be integrally rotatable to a rotatable shaft 16 of an electric motor 15 through a coupling joint 26. This reference also discloses that the input shaft 27 has opposing ends which are supported by the bearings 33 and 34. However, and in contrast to the present invention, this reference does not disclose or suggest a support shaft that is formed as extending from a second end portion of the driving pulley (which the Examiner has equated as being the input pulley 28 of the cited reference) along a central axis line of the driving pulley. In fact, the cited reference does not disclose or suggest that the input pulley 28 has any sort of support shaft at all. Instead, this reference discloses that the input pulley 28 is disposed on the input shaft 27, but this input shaft 27 is not a feature of the input pulley 28. Moreover, although this reference discloses bearings 33 and 34, these bearings are for supporting the input shaft 27, rather than for supporting the input pulley 28, as would be required by claim 9. Moreover, the input pulley 28 is not supported in a cantilever manner, as recited by claim 9. Instead, both ends of the input shaft 27 are supported, so that the input pulley 28 will not be subjected to any sort of rotational moments, so that the issue with the backlash will not be rectified by utilizing this disclosed configuration.

The Examiner's Action also relies on the teachings of *Yoshikatsu*. *Yoshikatsu* is directed to a transmission device for a bicycle, but does not overcome the above-noted deficiencies of *Sasaki*. As such, it is submitted that Applicants' independent

claim 9, and the claims dependent therefrom, are *prima facie* patentably distinguishable over the cited references. It is requested that these rejections be withdrawn and that these claims be allowed.

The Examiner's Action has also rejected claims 3, 4, 6-8, and 13-15 as being obvious over *Sasaki* in view of *Hirose et al.* (USP 4,768,998). Because the subject matter of claim 6 has been amended into independent claim 13, and since claim 6 has been canceled, Applicants will treat this rejection as applying to claims 3, 4, 7, 8, and 13-15. It is submitted that these claims are *prima facie* patentably distinguishable over the cited combination of references for at least the following reasons.

Claim 13 is also directed to an electric power steering apparatus which includes, *inter alia*, a circumscribed gear that is provided on an inner circumference of a driving pulley. The driving pulley is swingably supported by an inscribed gear. Further, a driven pulley is provided which has a diameter that is greater than a diameter of the driving pulley. This claimed invention has the following advantages.

Typically, with steering apparatuses that utilize reduction mechanisms having a pulley, a diameter of the driving pulley will be very small, and will almost always be smaller than a diameter of the driven pulley. With such arrangements, the length of the portion of the belt that extends around the driving pulley will be relatively short. Consequently, the load on the belt will become relatively large, so that the belt life will be shortened. In contrast, the diameter of the driving pulley recited in claim 13 is relatively large compared to the prior art driving pulleys, because the circumscribed gear which is provided on an inner circumference of the driving pulley is circumscribed about an inscribed gear. Further, and as also recited by this claim, the driving pulley is swingably supported by the inscribed gear. Consequently, the belt that fits around the driving pulley will have a long life. This is because the belt's load on the belt will become relatively small.

In contrast to the present invention, *Sasaki* discloses that a diameter of the driving pulley is relatively small, because the driving pulley is directly mounted to the input shaft which is integrally formed with the drive shaft of the electric motor. Consequently, the belt life will be shortened, because the belt load is so large.

The Examiner's Action also relies on the teachings of *Hirose et al.* This patent discloses a reduction mechanism for a bicycle. However, this reference does not disclose or otherwise suggest that the driven pulley has a diameter that is greater than a diameter of the driving pulley, as recited by claim 13. As such, even if the teachings of *Hirose et al.* were combined with the teachings of *Sasaki*, the resulting combination would not result in Applicants' claimed invention, and the resulting configuration would not decrease the belt load nor obtain a long life for

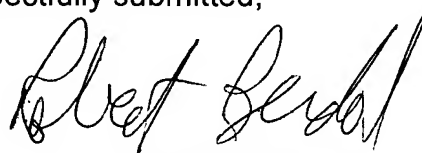
the belt. As such, it is respectfully submitted that Applicants' independent claim 13, and the claims dependent therefrom, are *prima facie*, patentably distinguishable over the cited combination of references. It is thus requested that the rejections against these claims be withdrawn, and that these claims be allowed.

It is submitted that this application is in condition for allowance. Such action, and the passing of this case to issue are requested.

Should the Examiner feel that a conference would help to expedite the prosecution of this application, the Examiner is hereby invited to contact the undersigned counsel to arrange for such an interview.

Should the remittance be accidentally missing or insufficient, the Director is hereby authorized to charge the fee to our Deposit Account No. 18-0002, and is requested to advise us accordingly.

Respectfully submitted,



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Date

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